# Vulcan Materials Company July 2006 Groundwater Quarterly Monitoring Report

## Former Hewitt Landfill
## Los Angeles, California

September 2006

*Prepared for:*
Vulcan Materials Company
3200 San Fernando Road
Los Angeles, CA

*Prepared by:*

CDM
18581 Teller Avenue, Suite 200
Irvine, California 92612

Project No. 22517-51079-REPORT

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The information contained in this report has received appropriate technical review and approval. The approach and methodology are based upon professional judgments founded upon review of available reports, the interpretation of such data and upon our professional experience and background. This acknowledgment is made in lieu of all warranties, either expressed or implied.

Prepared by:

John C. Bennett, P.G.
Project Manager

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# Section 1
# Introduction

This report presents the results of groundwater monitoring and sampling activities conducted at the Former Hewitt Landfill (site; Figure 1-1) during July 2006. Camp Dresser & McKee, Inc. (CDM) has prepared this report on behalf of the Vulcan Materials Company (Vulcan). This work was conducted in response to the letter from EPA dated February 2, 2006, which conveyed a request that Vulcan conduct additional groundwater monitoring at the site. This report summarizes the scope and results of the July 2006 quarterly sampling event, which was conducted in accordance to the Sampling and Analysis Plan and Quality Assurance Plan dated July 7, 2006.

The scope of work associated with this sampling event consisted of the following tasks:

- Redevelopment of facility wells 4899 and 4909F.
- Low-flow purging and sampling of two facility monitoring wells;
- Chemical analysis of groundwater samples for volatile organic compounds (VOCs), metals, general minerals and certain emerging compounds;
- Submission of quarterly report to the EPA summarizing the sampling event.

## 1.1 Property Background

The site is located in the North Hollywood portion of Los Angeles, California within an alluvial plain near the base of the San Gabriel Mountains in northern Los Angeles County (Figure 1-1).

## 1.2 Summary of Site Investigations

### 1.2.1 Previous Investigations and Regulatory Involvement

The site is located within a 4-square mile area designated by the EPA in 1986 as the North Hollywood Operable Unit (NHOU) of the San Fernando Superfund Area (EPA, 1989). Starting in 1979, VOCs, such as trichloroethene (TCE) and tetrachloroethene (PCE), were discovered in the alluvial groundwater aquifer within this area. Highest concentrations generally exist east (down-gradient) of the site (CH2M Hill, 2005). EPA implemented an interim remedial measure in 1989 for the NHOU consisting of groundwater extraction wells coupled to an air stripping treatment system that is located approximately 1 mile southeast of the site (Figure 1-1).

Law Environmental (1988, 1989) documented site groundwater conditions, sampling analytical results, and facility-well construction information for the site. These groundwater investigations were completed as a Solid Waste Assessment Test, which was required by the Los Angeles Regional Water Quality Control Board (RWQCB) for compliance with landfill-related regulations. Three facility wells are associated with

the site (Figure 1-2). Well 4899, is located west (up-gradient) of the site, and wells 4909C and 4909F are located along the eastern site boundary (down-gradient). According to present and historical groundwater data, groundwater flows generally west to east.

**Table 1-1**
**Facility Well Construction Summary**
**Former Hewitt Landfill, Los Angeles, California**

| Well | Casing Diameter (in) /Material | Total Depth (feet) | Screened Interval (feet-bgs) | Date Constructed |
|---|---|---|---|---|
| 4899 | 8/Steel | 290 | 120-286 | 11/1/1984 |
| 4909C | 6/Steel | 500 | 230-240<br>290-300<br>390-400<br>480-490 | Unknown |
| 4909F | 8/PVC | 348 | 138-348 | 11/25/1984 |

Facility wells have been sampled on several occasions. Most recently, well 4909F was sampled on September 22, 1995. Results of laboratory analyses performed on this sample indicated concentrations of TCE and PCE of 24 and 22 µg/L, respectively (CH2M Hill, 1995). Sampling events in 1988 and 1989 entailed sampling of all three facility wells. Existing facility-well data indicate that detectable concentrations of nitrate, chloride, dissolved solids, PCE, and TCE exist down-gradient and up-gradient (Law Environmental, 1988, 1989).

CDM conducted a down-hole video survey on wells 4899 and 4909F on March 14, 2006, the purpose of which was to evaluate the current condition of the facility wells. Well 4909C is owned by the Los Angeles Department of Water and Power (LADWP), and contained a non-removable packer that prevented us from conducting a down-hole video survey. Based on results of the down-hole video survey, CDM concluded that wells 4899 and 4909F should be redeveloped prior to sampling due to presence of inert debris and sediments.

### 1.2.2 Nature and Extent of Contamination

The NHOU is an area known to contain groundwater contaminated with various VOCs such as TCE and PCE. Other contaminants of concern include chromium, nitrates, and chloride. Industrial activities including aircraft parts manufacturing and cleaning and metal plating were known to have taken place in the vicinity of the site.

Three facility wells were last sampled in February 1989. Results of analyses conducted on the samples from that and previous events indicated that nitrate, chloride, PCE, and TCE were detected in both up-gradient and down-gradient facility wells, suggesting an up-gradient source.

# Section 2
# Monitoring and Sampling Activities

## 2.1 Groundwater Monitoring and Sampling Methodology

Detailed descriptions of well redevelopment, groundwater monitoring, sampling, and analytical methods used for this program are provided in CDM's work plan dated July 7, 2006. Field sheets for well redevelopment are provided in Appendices A, and field sheets for groundwater sampling are provided in Appendix B.

## 2.2 Quality Assurance/Quality Control Procedures

Detailed descriptions of quality assurance and quality control procedures relative to groundwater monitoring, sampling, and analytical methods are provided in CDM's work plan dated July 7, 2006.

During this sampling event, CDM collected three quality assurance/quality control (QA/QC) field samples, including one field equipment blank, two field duplicate samples, and a matrix spike/matrix spike duplicate (MS/MSD) sample. Trip blank, method blank, matrix spike, blank spike, and surrogate spike samples were prepared and analyzed by the laboratory.

## 2.3 Analyses Performed

Groundwater samples were analyzed for one or more of the following constituents:

- VOCs, in accordance with USEPA Method 8260;
- Title 22 metals, in accordance with USEPA Method 6000 and 7000 series;
- Hexavalent chromium, in accordance with USEPA Method 7199;
- Nitrosodimethylamine (NDMA), in accordance with USEPA Method 1625;
- 1,2,3-Trichloropropane (1,2,3-TCP), in accordance with USEPA Method 504.1;
- Perchlorate, in accordance with USEPA Method 314.0;
- Nitrate and Nitrite (as Nitrogen), in accordance with USEPA Methods 353.3 and 354.1;
- Sulfide, in accordance with USEPA Method 376.2; and
- Various anions and cations, in accordance with USEPA Methods 300.0 and 6010B.

Laboratory analyses were performed by Calscience Environmental Laboratories (CEL) of Garden Grove, California. CEL is a California certified laboratory.

Chain-of-custody forms and copies of the laboratory reports containing all analytical results are included in Appendix C.

## 2.4 Work Plan Deviations

CDM attempted to carry out the above-referenced scope of work in accordance with the USEPA-approved scope of work detailed in the Sampling and Analysis Plan and Quality Assurance Plan dated July 7, 2006. However, CDM noted the following deviations from the work plan:

- During well redevelopment, water level measurements were not consistently recorded during recovery after development. Therefore, specific capacity of monitoring wells 4899 and 4909F could not be determined. Because this was not a project objective, no further action is warranted.

- The target detection limit of 0.02 mg/l for magnesium was not achieved by the project laboratory. However, detections of magnesium were significantly higher than the target reporting limit, or the reporting limit obtained by the laboratory, so this discrepancy becomes irrelevant.

- Two duplicate groundwater samples were analyzed by the laboratory due to a misunderstanding. CDM submitted extra sample volume to the laboratory, the intent of which was to provide sufficient volume to conduct MS/MSD analyses for quality assurance purposes. This occurrence does not affect the results or our interpretations of the data. In addition, CDM recommends that no duplicates be required in the next sampling event since an appropriate overall duplicate ratio will still be achieved, and laboratory precision can be evaluated using MS/MSD data.

# Section 3
# Results and Discussion

## 3.1 Discussion of Well Redevelopment

CDM's video survey of well 4899 indicated scaling within the screened interval and a piece of half-inch PVC debris. In addition, the video survey indicated that wells 4899 and 4909F have sediment accumulated at the bottom. Therefore, these wells were briefly redeveloped to facilitate collection of groundwater samples.

Well 4899 was wire-brushed briefly to remove scaling. Extensive wire brushing was not conducted to avoid damaging the casing, and no chemical treatments were used. CDM also removed a piece of half-inch PVC from well 4899 identified during the down-hole video survey.

Wells 4899 and 4909F were redeveloped by successive episodes of surging, bailing, and pumping. Purged development water was monitored periodically for temperature, specific conductance, and pH. Records of these measurements are included in Appendix A.

Approximately 6 vertical feet of soil were bailed from inside the casing of well 4899. The well was then wire brushed, and approximately 533 gallons were purged. Approximately 0.51 inches of drawdown occurred while pumping at approximately 5.5 gallons per minute (gpm).

Nearly 1.5 feet of soils were initially bailed from inside the casing of well 4909F. Then, approximately 605 gallons were purged. Approximately 0.09 inches of drawdown occurred while pumping at approximately 5.5 gpm.

Because Vulcan does not own well 4909C, and redevelopment would require removal of the existing pump and packer by LADWP, no redevelopment or sampling was conducted on this well.

## 3.2 Results of Groundwater Elevation Monitoring

Groundwater elevation data are presented in Table 1, including groundwater elevations from this sampling quarter as well as historical data collected during past monitoring periods by others. The historical period includes groundwater elevations dating back to April 1988.

## 3.3 Results of Groundwater Analyses

The results of the groundwater chemical analyses are listed in Tables 2 through 6, and are summarized in Sections 3.3.1 through 3.3.4. Laboratory data sheets are included in Appendix for each analyte, and sample results were compared to the Maximum Contaminant Levels (MCLs), Public Health Goals (PHGs), National Secondary Drinking Water Standard (NSDWS), and Drinking Water Notification Level (DWNL), where applicable, to assess the relative significance of observed concentrations.

### 3.3.1 Volatile Organic Compounds

The VOC analytical results are shown in Table 2. The following VOCs were detected:

- 1,1-Dichloroethane (1,1-DCA);
- 1,1-Dichloroethene (1,1-DCE);
- Cis-1,2-Dichloroethene (c-1,2-DCE);
- Chloroform;
- Dichlorodifluoromethane;
- PCE; and
- TCE.

For the current monitoring period, 1,1-DCA, PCE, and TCE were detected above their respective MCLs in well 4909F. The range of detected concentrations for each VOC and the number of wells in which the concentration exceeded the respective MCL for each compound is listed as follows:

- 1,1-DCA was detected in well 4909F at a concentration of 5.8 µg/l. However, the duplicate concentration was 4.3 µg/l, which is below the MCL of 5.0 µg/l for this compound.
- PCE was detected in well 4909F at a concentration of 23 µg/l, relative to its MCL of 5.0 µg/l. The duplicate sample concentration was 15 µg/l.
- TCE was detected in well 4909F at a concentration of 74 µg/l, relative to its MCL of 5.0 µg/l. The duplicate sample concentration was 40 µg/l.

### 3.3.2 Dissolved Metals

The results of the dissolved metals analyses are presented on Table 4. Nickel was detected above laboratory reporting limits at both wells at concentrations ranging from 0.00344 mg/l (4909F-duplicate) to 0.00523 mg/l (4899). Zinc was detected above laboratory reporting limits at both wells at concentrations ranging from 0.0200 mg/l (4909F-duplicate) to 0.0480 mg/l (4899). No metals were detected above their respective MCLs.

Chromium was detected in the equipment blank sample at a concentration of 0.00166 mg/l. The equipment blank was obtained by running laboratory-grade distilled water through the body of the bladder pump used to purge well 4899. The chromium detection in the equipment blank may have resulted from the stainless-steel used in the bladder pump body assembly.

### 3.2.3 General Minerals

The results of the minerals analyses are presented on Table 5. The following analytes were reported:

- Total Alkalinity, as calcium carbonate ($CaCO_3$);
- Bicarbonate Alkalinity, as calcium carbonate ($CaCO_3$);
- Hydroxide Alkalinity, as calcium carbonate ($CaCO_3$);
- Total Hardness;
- Total Dissolved Solids (TDS);
- Total Organic Carbon (TOC);
- Assorted cations, such as Calcium, Iron, Manganese, Magnesium, Potassium Silicon (derived from silica concentration ), Sodium;
- Assorted anions, such as Fluoride and Chloride;
- Nitrate and Nitrite (as N);
- Sulfate; and
- Total Sulfide.

For the current monitoring period, manganese and nitrate were detected above their respective MCLs in well 4899. The range of detected concentrations for each mineral and the number of wells in which the concentration exceeded the respective MCL for each mineral is listed as follows:

- Manganese was detected in well 4899 at a concentration of 0.167 mg/l, relative to its MCL of 0.05 mg/l. The duplicate concentration was 0.170 mg/l.
- Nitrate, as N, was detected in well 4899 at a concentration of 19 mg/l, relative to its MCL of 10 mg/l. The duplicate concentration for well 4899 was also 19 mg/L. Nitrate was also detected in well 4909F, and in the duplicate sample, at a concentration of 12 mg/l.

### 3.3.4 Emerging Compounds

Groundwater samples from the Site were analyzed for the following five emerging compounds: 1,2,3-Trichloropropane (1,2,3-TCP), hexavalent chromium, N-Nitrosodimethylamine (NDMA), 1,4-Dioxane, and perchlorate. The emerging compounds analytical results are shown in Table 5.

During the current monitoring period, hexavalent chromium was the only emerging compound detected at or above the laboratory reporting limit. Hexavalent chromium was detected in well 4909F at a concentration of 1.3 µg/l and the duplicate sample concentration was 1.4 µg/l.

### 3.3.4 Field Parameters

During well sampling, turbidity, temperature, pH, and EC were measured at the beginning of purging for each monitoring well, after each purge volume was removed, and immediately before sample collection. Results of the measurements conducted immediately prior to sample collection are summarized on Table 6, and field sheets are included in Appendix B.

## 3.4 Laboratory Data Evaluation

Analytical data collected during the June 2006 quarterly groundwater sampling event at the former Hewitt Landfill were reviewed and evaluated to ensure that they were usable and met the project objectives. EPA's Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review ("Functional Guidelines", EPA, 1999 and 2004) were used in conjunction with analytical method requirements to assess overall analytical data quality. Specifically, EPA's Functional Guidelines were used to assist in the overall technical review process and rationale; whereas, criteria specified in the project SAP were used to assess accuracy and precision and to determine when data qualification was warranted.

Laboratory data were reviewed for inclusion and frequency of the necessary QC supporting information. Supporting QC documentation that was evaluated for each analytical report included the following major items:

- sample holding times
- method blanks
- MS/MSD recoveries
- relative percent difference (RPD) between MS and MSD
- laboratory control sample (LCS) recoveries
- surrogate spike recoveries

The review included data generated by Calscience Environmental Laboratories (CEL), located in Garden Grove, California. CEL is certified by California's Environmental Laboratory Accreditation Program (ELAP Certification number 1230). All samples were analyzed for VOCs using EPA Method 8260B, NDMA and 1,4-dioxane using EPA Method 8270C(M), 1,2,3-TCP using EPA Method 524.2(M), perchlorate by EPA Method 314, hexavalent chromium by EPA Method 7199, metals (EPA Methods 6020 and 7470A), TOC by EPA Method 415.1, alkalinity by Standard Methods 2320B,

hardness by EPA Method 130, TDS by EPA Method 160.1, nitrite by EPA Method 300, fluoride by EPA Method 340.2 and total sulfides using EPA Method 376.2. Findings from the data evaluation are discussed in the following sections.

## Holding Times

For water samples, the maximum method holding times for the target analyzed vary from 24 hours (hexavalent chromium) to 6 months (metals) and are specified in Table 3-1 of the SAP. Extraction and analysis dates for each analyte in each sample were compared against these holding times. Based on the comparison, it was determined that all water samples collected during the first monitoring event were analyzed within the specified technical holding times.

## Method Blanks.

Method blanks were analyzed along with all samples at a frequency of one blank per analytical batch. An analytical batch is defined as a maximum of 20 samples of similar matrix from one project that are analyzed together. The method blank is processed through all procedures, materials, reagents and labware used for sample preparation and analysis.

No concentrations of any target analytes were detected in any of the method blanks at concentrations greater than their respective laboratory reporting limits.

## Laboratory Control Samples

Laboratory control samples (LCS), also referred to as blank spikes, are prepared by spiking a known amount of the pure analyte into a method blank, which is then carried along with the samples through the entire sample preparation/analysis sequence. LCS results provide information on the accuracy of the analytical method and on the laboratory's performance.

All LCS recoveries were within acceptable control limits (specified in SAP) for all analyses performed except for one analyte in one sample, which indicates acceptable accuracy for a clean water matrix. Vinyl chloride was recovered in one LCS analyzed on July 26, 2006 at 77 percent, which is below the lower acceptance limit of 85 percent. Only one sample (the duplicate sample collected from 4909F) was analyzed in this batch. This vinyl chloride result was qualified with a "J" to indicate an estimated result. All other LCS recoveries were within acceptable limits.

## Matrix Spike and Matrix Spike Duplicate Samples

Sample matrix spikes are prepared by adding a known amount of the pure analyte to the sample before extraction. Matrix spike duplicate samples are prepared from a second aliquot of the sample analyzed as the matrix spike. MS and MSD results are used to assess background and interferences that may have an effect on the sample analyte, and the (RPD) is used to assess precision between samples of similar type. MS/MSD samples were analyzed at a frequency of 1 per 20 samples, or one per analytical batch of similar matrix, for all analyses.

Based on a review of the laboratory QC summary sheets, all MS and MSD samples were analyzed at the method-specified frequency of 1 per 20 samples. All MS/MSD recoveries and the difference between the two were within the control limits specified in the SAP except for one analyte in one MS/MSD pair, which indicates acceptable accuracy and precision. NDMA was recovered in the MS sample analyzed on July 28, 2006 at 55 percent, which is within the acceptance limits of 50 to 130 percent. The MSD, however, was recovered at 40 percent, which is below the acceptance limit. Because the MS recovery was within control limits and because the MSD was just slightly below the acceptance limit, qualification was not deemed necessary. Therefore, no further action was warranted.

### Surrogate Spike Samples

Laboratory performance on individual samples is evaluated by means of spiking. All samples analyzed for organics are spiked with surrogates just prior to sample purging (or sample extraction). Percent recoveries for all surrogates were provided with each analytical report, as well as the acceptable control limits (established by the laboratory).

All percent recoveries for all surrogates spiked into project samples and laboratory QC samples were within the required ranges, which demonstrate acceptable performance on an individual sample basis.

### Overall Assessment of Groundwater Data

Based on the review of the groundwater data, there were no laboratory QC deficiencies reported during the laboratory analyses that were significant enough to warrant data rejection. However, due to a slightly low LCS recovery of vinyl chloride, one sample result was qualified with a "J" to indicate an estimated result. All other groundwater data collected during the 2006 sampling event were determined to be usable without data qualification.

# Section 4
# Summary of Findings and Recommendations

## 4.1 Summary of Findings

Data collected during this monitoring event conducted at the site in July 2006 indicates that TCE, PCE, 1,1-DCA, manganese, and nitrate are present in groundwater within facility wells at concentrations greater than their respective MCLs. Results these analyses from this sampling event are generally similar to previous sampling events conducted in 1988, 1989, and 1995, as specified below.

*PCE*
Samples from well 4899 have historically contained between <1 and 200 µg/L PCE, relative to the currently detected 4.1 µg/L. Samples collected from well 4909F have historically contained between <1 and 22 µg/L relative to the current 23 µg/L.

*TCE*
Samples from well 4899 have historically contained between <1 and 45 µg/L TCE, relative to <1 ug/L currently. Samples collected from well 4909F have historically contained between <1 and 24 µg/L relative to the current 74 µg/L in the primary sample and 40 µg/L in the duplicate.

*1,1-DCA*
Samples from well 4899 have historically contained between <1 and 46 µg/L 1,1-DCA, relative to the current concentration that is below its reporting limit of 1 ug/L. Samples collected from well 4909F have historically contained less than its reporting limit of 1 µg/L, relative to the current 5.8 µg/L.

*Nitrate*
Samples from well 4899 have historically contained between 0.6 and 30 mg/L nitrate, relative to the currently detected 19 mg/L. Samples collected from well 4909F have historically contained between 35 and 73 mg/L, relative to the current 12 mg/L.

*Manganese*
Samples from well 4899 have historically contained between < 0.005 and 0.05 mg/L manganese, relative to the currently detected 0.167 mg/L. Samples collected from well 4909F have historically contained between < 0.005 and 0.05 mg/L, relative to the current concentration of less than the reporting limit of 0.005 mg/L.

## 4.2 Recommendations

Three additional sampling events are planned for October 2006, January 2007, and April 20007. Based on groundwater data from previous and the current sampling events, and because their concentrations are below reporting limits, CDM recommends that the following analyses be eliminated from future sampling events:

- 1,4 Dioxane;
- Minerals (although nitrate and nitrite analyses should continue);
- 1,2,3-Trichloropropane;
- N-nitrosodimethylene; and
- Perchlorate.

# Section 5
# References

CH2M Hill, 1995, Groundwater Monitor Well Sampling and Soil Gas Sampling at Selected Landfills in the North Hollywood Area, San Fernando Groundwater Monitoring Program.

CH2M Hill, 2005, 2004 RI Monitoring Well Sampling, San Fernando Valley, Los Angeles County, California.

EPA, 1989, EPA Record of Decision: San Fernando Valley (Area 1), OU 3, North Hollywood, CA.

EPA, 1999, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review; EPA-540/R-99-008 (October 1999).

EPA, 2001, EPA Requirements for Quality Assurance Project Plans; EPA QA/R-5 (EPA/240/B-01/003, March 2001).

EPA, 2002, EPA Guidance for Quality Assurance Project Plans; EPA QA/G-5; (EPA/240/R-02/009, December 2002).

EPA, 2004, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review EPA 540-R-04-004 (October 2004).

Law Environmental, 1988, Solid Waste Assessment Test Report - Water, Hewitt Landfill, North Hollywood District, Los Angeles, California.

Law Environmental, 1989, Solid Waste Assessment Test Supplementary Monitoring Report, Hewitt Landfill (Closed), North Hollywood District, Los Angeles, California

# Section 6
# Figures

G:\22517_Vulcan\Figure 1-1_Site Vicinity Map.mxd


**Legend**

Hewitt Landfill Boundary

CDM

Hewitt Landfill (Closed)
7361 Laurel Canyon Boulevard
Los Angeles, CA 91605

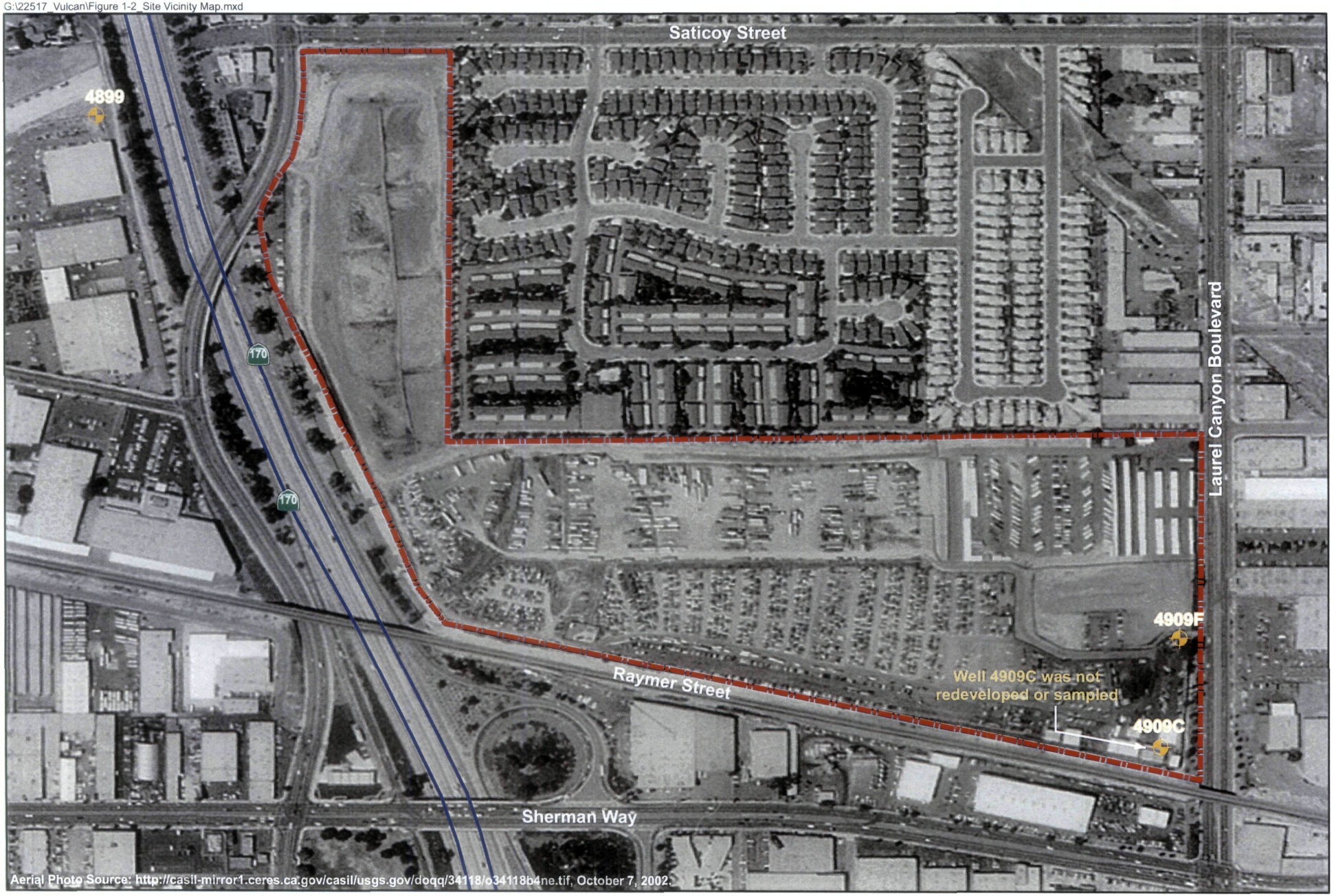
N

0 500 1,000 2,000
Feet

**Vulcan Materials Company**
***Hewitt Landfill (Closed)***
**Site Vicinity Map**

**Figure 1-1**

G:\22517_Vulcan\Figure 1-2_Site Vicinity Map.mxd




CDM

Legend

Hewitt Landfill Boundary

Monitoring Well

Hewitt Landfill (Closed)
7361 Laurel Canyon Boulevard
Los Angeles, CA 91605

N

0 125 250 500
Feet

**Vulcan Materials Company**
***Hewitt Landfill (Closed)***
**Site Vicinity Map**

**Figure 1-2**

# Section 7
# Tables

**Table 1**
Vulcan, Former Hewitt Landfill
Past and Present Groundwater Levels

| Well ID | Date of Measurement | Measured by | Total Depth of Well (ft-msl) | Depth to Water (ft-bgs) | Groundwater Elevation (ft-msl) |
|---|---|---|---|---|---|
| **4899** | 4/4/1988 | Law Environmental | 290 | 246.80 | 522.20 |
| **4899** | 9/15/1995? | CH2MHill | 290 | 287.00 | 482.00 |
| **4899** | 7/20/2006 | CDM | 291.72 | 271.89 | 497.11 |
| **4909C** | 4/26/1988 | Law Environmental | 500 | 248.08 | 501.92 |
| **4909C** | 9/15/1995? | CH2MHill | 500 | 264.00 | 486.00 |
| **4909F** | 4/4/1988 | Law Environmental | 348 | 247.88 | 517.12 |
| **4909F** | 09/15/1995? | CH2MHill | 348 | 245.00 | 520.00 |
| **4909F** | 7/21/2006 | CDM | 340.38 | 266.18 | 498.82 |

***Notes:***
ft-msl = feet mean sea level
ft-bgs = feet below ground surface

**Table 2**
Vulcan, Former Hewitt Landfill
Groundwater Sampling Results
Volatile Organic Compounds (ug/L)

| | Type | Units | 1,1-Dichloroethane | 1,1-Dichloroethene | c-1,2-Dichloroethene | Chloroform | Dichlorodifluoromethane | Tetrachloroethene | Trichloroethene |
|---|---|---|---|---|---|---|---|---|---|
| | **MCL** | µg/l | **5.0** | **6.0** | **6.0** | NE | NE | **5.0** | **5.0** |
| **Well ID** | **PHG** | µg/l | **3.0** | **10** | **100** | NE | NE | **0.06** | **0.8** |
| **4899** | | µg/l | 1 U | 1 U | 1 U | 1 U | 1 U | 4.1 | 1 U |
| **4899** | EB | µg/l | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| **4899** | K | µg/l | 1 U | 1 U | 1 U | 1 U | 1 U | 3.8 | 1 U |
| **4909F** | | µg/l | **5.8** | 2.7 | 4.1 | 2.0 | 1 4 | **23** | **74** |
| **4909F** | K | µg/l | 4.3 | 1 U | 2.9 | 1.5 | 1 U | **15** | **40** |

**Notes:**
Only analytes detected in one or more samples are listed
All samples analyzed using EPA Method 8260B
MCL = Maximum Contaminant Level, as required by California Department of Health Services
PHG = Public Health Goal, as required by California Office of Environmental Health Hazard Assessment
NE = None Established, as of the date of this report.
µg/l = micrograms per liter
U = Not detected at a concentration greater than the laboratory reporting limit shown
EB = Equipment blank
K = Duplicate sample

**Table 3**
Vulcan, Former Hewitt Landfill
Groundwater Sampling Results
Dissolved Metals (mg/L)

| Well ID | Sample Type | Antimony | Arsenic | Beryllium | Cadmium | Chromium | Copper | Lead | Mercury | Nickel | Selenium | Silver | Thallium | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MCL** | **0.006** | **0.05** | **0.004** | **0.005** | **0.005** | **1.3** | **0.015** | **0.002** | **0.10** | **0.05** | **0.10** | **0.002** | **5.0** |
| | **PHG** | **0.02** | **0.000004** | **0.001** | **0.00007** | NE | **0.17** | **0.002** | **0.0012** | **0.012** | NE | NE | **0.0001** | NE |
| | **NSDWS** | NE | **0.01** | NE | NE | NE | **1.0** | NE | NE | NE | NE | **0.10** | NE | **5.0** |
| 4899 | | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.0005 U | 0.00523 | 0.001 U | 0.001 U | 0.001 U | 0.0480 |
| 4899 | EB | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.00166 | 0.001 U | 0.001 U | 0.0005 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.0121 |
| 4899 | K | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.0005 U | 0.00453 | 0.001 U | 0.001 U | 0.001 U | 0.0340 |
| 4909F | | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.0005 U | 0.00368 | 0.001 U | 0.001 U | 0.001 U | 0.0336 |
| 4909F | K | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.001 U | 0.0005 U | 0.00334 | 0.001 U | 0.001 U | 0.001 U | 0.0200 |

**Notes:**

All parameters analyzed using EPA Method 6020 except mercury, which was analyzed using EPA method 7470A

MCL = Maximum Contaminant Level, as required by California Department of Health Services

PHG = Public Health Goal, as required by California Office of Environmental Health Hazard Assessment

NSDWS = National Secondary Drinking Water Standards

NE = None Established, as of the date of this report

All analytical results in milligrams per liter (mg/l)

U = Not detected at a concentration greater than the laboratory reporting limit shown

EB = Equipment blank

K = Duplicate sample

**Table 4**
Vulcan, Former Hewitt Landfill
Groundwater Sampling Results
General Minerals (mg/L)

| Well ID | Sample Type | Alkalinity, Total (as $CaCO_3$) | Bicarbonate Alkalinity (as $CaCO_3$) | Hydroxide Alkalinity (as $CaCO_3$) | Carbonate Alkalinity (as $CaCO_3$) | Hardness, Total | Solids, Total Dissolved | Carbon, Total Organic | Calcium | Iron | Magnesium | Manganese | Potassium | Silicon (from Silica) | Sodium | Chloride | Fluoride | Nitrate (as N) | Nitrite (as N) | Sulfate | Sulfide, Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **MCL** | NE | NE | NE | NE | NE | **1500** | NE | NE | **0.30** | NE | **0.05** | NE | NE | NE | **600** | **2.0** | **10** | **1.0** | **600** | NE |
| | **PHG** | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | NE | **1.0** | NE | **1.0** | NE | NE |
| | **NSDWS** | NE | NE | NE | NE | NE | **500** | NE | NE | **0.30** | NE | **0.05** | NE | NE | NE | **250** | **2.0** | NE | NE | **250** | NE |
| EPA Method | | | SM2320B | | | 130.0 | 160.1 | 415.1 | 6010B | | | | | | | | | 300 | | | 376.2 |
| 4899 | | 290 | 290 | 290 | 1 U | 480 | 597 | 1.6 | 140 | 0.1 U | 25.0 | **0.167** | 5.45 | 9.38 | 45.5 | 66 | 0.26 | **19** | 0.1 U | 42 | 0.05 U |
| 4899 | EB | 1.7 | 1.7 | 1.7 | 1 U | 2 U | 1 U | 0.5 U | 0.1 U | 0.1 U | 0.1 U | 0.005 U | 0.5 U | 0.107 U | 0.599 | 1 U | 0.1 U | 0.1 U | 0.1 U | 1.4 | 0.05 U |
| 4899 | K | 290 | 290 | 290 | 1 U | 430 | 623 | 1.7 | 139 | 0.1 U | 25.7 | **0.170** | 5.31 | 9.61 | 44.6 | 64 | 0.25 | **19** | 0.1 U | 42 | 0.05 U |
| 4909F | | 300 | 300 | 300 | 1 U | 400 | 543 | 1.6 | 124 | 0.1 U | 24.8 | 0.005 U | 5.68 | 12.6 | 42.0 | 35 | 0.26 | **12** | 0.1 U | 59 | 0.05 U |
| 4909F | K | 300 | 300 | 300 | 1 U | 400 | 535 | 1.5 | 119 | 0.1 U | 23.4 | 0.005 U | 6.00 | 12.2 | 40.2 | 33 | 0.26 | **12** | 0.1 U | 57 | 0.05 U |

**Notes:**
$CaCO_3$ = Calcium carbonate
MCL = Maximum Contaminant Level, as required by California Department of Health Services
PHG = Public Health Goal, as required by California Office of Environmental Health Hazard Assessment
NSDWS = National Secondary Drinking Water Standards
NE = None Established, as of the date of this report
All analytical results in milligrams per liter (mg/l)
U = Not detected at a concentration greater than the laboratory reporting limit shown
EB = Equipment blank
K = Duplicate sample

**Table 5**
Vulcan, Former Hewitt Landfill
Groundwater Sampling Results
Emerging Compounds

| Well ID | Sample Type | 1,2,3-Trichloropropane (1,2,3-TCP) | Chromium, Hexavalent | N-Nitrosodimethylamine (NDMA) | 1,4-Dioxane | Perchlorate |
|---|---|---|---|---|---|---|
| | **MCL** | **0.005** | NE | NE | NE | NE |
| | **PHG** | NE | NE | NE | NE | **6.0** |
| | **DWNL** | NE | NE | **10** | **3.0** | **6.0** |
| EPA Method | | 524.2M (ng/l) | 7199 (µg/l) | 8270C M (ng/l) | | 314.0 (µg/l) |
| 4899 | | 0.005 U | 0.13 J | 2 U | 2 U | 2 U |
| 4899 | EB | 0.005 U | 0.11 J | 2 U | 2 U | 2 U |
| 4899 | K | 0.005 U | 0.12 J | 2 U | 2 U | 2 U |
| 4909F | | 0.005 U | 1.3 | 2 U | 2 U | 2 U |
| 4909F | K | 0.005 U | 1.4 | 2 U | 2 U | 2 U |

**Notes:**

MCL = Maximum Contaminant Level, as required by California Department of Health Services

PHG = Public Health Goal, as required by California Office of Environmental Health Hazard Assessment

DWNL = Drinking Water Notification Level, as required by California Department of Health Services

NE = None Established, as of the date of this report

ng/l = nanograms per liter

µg/l = micrograms per liter

U = Not detected at a concentration greater than the laboratory reporting limit shown

EB = Equipment blank

K = Duplicate sample

J = Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is an estimate.

**Table 6**
Vulcan, Former Hewitt Landfill
Groundwater Sampling Results
Field Parameters

| Well ID | pH | Specific Conductance | Turbidity | Dissolved Oxygen | Redox | Temperature |
|---|---|---|---|---|---|---|
| | S.U. | umohs/cm | NTU | mg/L | mV | degrees C |
| 4899 | 7.36 | 1 | 70 | 2.31 | 75 | 22.2 |
| 4909F | 6.92 | 0.961 | 11 | 9.18 | 280 | 21.7 |

**Notes:**
Results presented represent conditions measured immediately prior to sample collection
mg/L = milligrams per liter
SU = Standard pH Units
umohs/cm = micromohs per centimeter
mV = millivolts

# Appendix A
# July 2006 Sampling Event

# Well Redevelopment Records

| | | |
|---|---|---|
| Well No.: MW-4899 | Site/Location: 7361 Laurel Canyon Blvd. | |
| Client: ~~CD~~ Vulcan | Contractor: CDM / WDC | Page 1 of 1 |
| Date Started: 17 July 06 · Mon. | Time Started: 1100 | Development Rig: (Y) N |
| Date Ended: 17 July 06 | Time Ended: 1600 | Casing Diameter: 8" |
| Equipment: Pullstar 12,000 | Pre-devel. Static Water Level (feet BTOC): 271.58 | |
| Development Method: bail, brush, bail, pump | Average discharge rate (gpm): 5.5 gpm | |
| Maximum Drawdown During Pumping: _____ feet at 5.5 gpm | Total Quantity Bailed (gallons): ~65 gal. | |
| | Total Quantity Pumped (gallons): 533.5 | |
| | Developed By: N Begay (CDM) / ~~Niel~~ Neil D. (WDC) | |

Total Depth of Well (feet): 291.72 2" - 0.16 8"

Depth to Water (feet): 271.58 (X) 4" - 0.65 = _____ One (1) Casing Volume

Water Column Height (feet): 20.14 6" - 1.47 > 30 gal.

| Time | Gallons | Temp. (°C) °F) | pH | Conductivity (~~umhos~~/cm) mS | Turbidity (NTUs) | Water Level (ft. BTOC) | Remarks DO | Sal. (%) |
|---|---|---|---|---|---|---|---|---|
| 1428 | ~~82.5~~ 27 | 24.1 | 6.82 | 0.93 | >999 | – | 7.61 mg/L | 0.04% |
| 1438 | 82.5 | 20.9 | 7.55 | 1.0 | >999 | 273.22 | 10.37 | 0.04 |
| 1448 | 137.5 | 20.0 | 7.6 | 0.90 | 650 | 272.68 | 10.3 | 0.0 |
| 1458 | 192.5 | 20.0 | 7.7 | 0.91 | 550 | 272.71 | 9.5 | 0.0 |
| 1508 | 247.5 | 20.0 | 7.4 | 0.91 | 480 | 272.71 | 9.6 | 0.0 |
| 1518 | 302.5 | 20.0 | 7.3 | 0.91 | 328 | 272.7 | 9.4 | 0.0 |
| 1528 | 357.5 | 20.0 | 7.5 | 0.92 | 350 | 272.65 | 10.6 | 0.0 |
| 1548 | 462.0 | 19.8 | 6.62 | 1.04 | - | 272.73 | 10.62 | 0.04 |
| 1558 | 522.5 | 19.8 | 6.61 | 0.944 | – | – | 10.32 | 0.04 |
| 1600 | Pump off. | | | | | | clear/no color - tank full | |
| 1602 | | | | | | 271.39 | | |
| 1603 | | | | | | 271.51 | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

CDM WELL DEVELOPMENT LOG 1538

1650 - leaving trailer

Well No.: MW-4909F | Site/Location: Vulcan-Hewitt, 7301 Laurel Canyon Blvd.

Client: Vulcan | Contractor: NDC | Page 1 of 1

Date Started: 18 July 06 Tues | Time Started: 1000 | Development Rig: (Y) N

Date Ended: 18 July 06 | Time Ended: 1645 | Casing Diameter: 8"

Equipment: Pullstar 12000 | Pre-devel. Static Water Level (feet BTOC): 365.83

Development Method: bail, surge, bail, pump | Average discharge rate (gpm): 5.5

Maximum Drawdown During Pumping: _____ feet at 5.5 gpm | Total Quantity Bailed (gallons): 105 (2 separate occasions)

Total Quantity Pumped (gallons): 605

Developed By: N. Begay (CDM) + Neil D. (NDC)

Total Depth of Well (feet): 340.38 2" - 0.16

Depth to Water (feet): 265.83 (X) 4" - 0.65 = _____ ~~One~~ (1) Casing Volume

Water Column Height (feet): 74.55 6" - 1.47 >109.6 8" - Sch. 80 PVC

10 (ten)

| Time | Gallons | Temp. (°C) °F | pH | Conductivity (~~pmhos~~/cm) mS | Turbidity (NTUs) | Water Level (ft. BTOC) | DO (mg/L) | Remarks Sal(%) | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| 1450 | 27.5 | 23.5 | 6.82 ~~8.43~~ | 0.892 | ~~10~~ 43 | — | 11.02 | 0.03 ~~0.04~~ | turb. not stable |
| 1500 | 82.5 | 20.7 | 7.85 | 0.823 | -10 | 265.93 | 10.99 | 0.03 | |
| 1510 | 137.5 | 19.8 | 7.99 | 0.830 | -10 | 265.89 | 10.01 | 0.03 | |
| 1520 | 192.5 | 20.8 | 7.84 | 0.822 | -10 | — | 11.15 | 0.03 | Pump off add 40 gal |
| 1540 | 247.5 | 20.8 | 8.08 | 0.806 | 1-7 | 265 ~~256~~ .84 | 10.14 | 0.03 | Pump off for 10 min. Didn't stabalize |
| 1550 | 302.5 | 20.5 | 7.67 | 0.816 | 12-18 | 265.85 | 9.30 | 0.03 | Turb. not stable |
| 1600 | 357.5 | 20.0 | 8.39 | 0.830 | 5-16 | 265.84 | 8.45 | 0.03 | |
| 1610 | 412.5 | 20.1 | 8.44 | 0.829 | 17-20 | 265.83 | 7.85 | 0.03 | -10 NTU trace fine sand |
| 1620 | 467.5 | 19.7 | 8.58 | 0.829 | 1-4 | 265.83 | 10.22 | 0.03 | -10 NTU other ur |
| 1630 | 522.5 | 19.9 | 8.62 | 0.827 | 7-10 | 265.85 | 8.50 | 0.03 | -10 DO didn't stb. |
| 1640 | 577.5 | 19.6 | 8.56 | 0.829 | -10 | 265.83 | 9.16 | 0.03 | clear, trace sand -10 NTU |
| 1645 | 605.0 | 19.2 | 8.62 | 0.826 | -10 | 265.84 | 8.78 | 0.03 | -10 NTU |
| | STOP PUMPING | | | | | | | | |

CDM

WELL DEVELOPMENT LOG

# Appendix B
# July 2006 Sampling Event

# Purge Characterization and Sample Logs

| Well No.: 4899 | Site: Former Hewitt Landfill | Date: 7/20/06 |
|---|---|---|
| Client: Vulcan | Project Number: 22517-51079 | |
| Well Casing Diameter (inches): 8" | Well Casing Material: (PVC) SS Other: | |
| Well Headspace: PID (ppm): ~~N/A~~ 0.0 ppm | FID (ppm): N/A | |
| Samplers: H. YOUNG | with CDM | |
| Total Depth of Well (feet): 291.72' btoc | 2" - 0.16 | |
| Depth to Water (feet): 271.89 | (X) 4" - 0.65 Gal/ft = N/A | (X) 3 = NA |
| Water Column Height (feet): | 6" - 1.47 | Low Flow Purge |
| Well Reference Point: TOC NORTH EDGE 8.63" | | |

| PURGE METHOD: Submersible pump ☐ Bladder pump ☒ Disposable bailer ☐ | |
|---|---|
| Pump Make/Model: | Depth of pump intake (feet): 280' btoc |
| Purge equipment decontaminated? Y ☒ N ☐ | Container type: Baker tank or 55 gallon drum |
| Purge/decon water containerized? Y ☒ N ☐ | Volume: |
| Initial DO 3.44 mg/L | Start Time: 11:15 Flow Rate: 500ml/MIN |

| Time | ~~Gallons~~ LITERS | Temp (°C/°F) | pH | Conductivity (µmhos/cm) | Turbidity (NTUs) | DO (mg/L) | ORP (mV) | DTW (ft TOC) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 11:15 | 0 | | | | | | | | BEGIN MICROPURGING 500 500ml/MIN |
| 11:20 | ~~1.5~~ 2.5 | 23.0 | 7.21 | 1.04 | 212 | 3.44 | 179 | 271.88 | CLOUDY |
| 11:25 | ~~3.0~~ 5 | 22.3 | 7.32 | 1.00 | 202 | 2.53 | 102 | | |
| 11:35 | 10 | 22.0 | 7.31 | 1.00 | 152 | 2.30 | 33 | 271.90 | CLOUDY |
| 11:45 | 15 | 21.6 | 7.31 | 1.00 | 136 | 2.38 | 18 | 271.90 | CLOUDY |
| 11:55 | 20 | 21.6 | 7.33 | 1.00 | 155 | 2.41 | 25 | 271.89 | |
| 12:05 | 25 | 21.9 | 7.36 | 1.00 | 157 | 2.67 | 37 | 271.96 | |
| 12:20 | 32.5 | 22.1 | 7.35 | 1.06 | 80 | 3.21 | 61 | 271.90 | |
| 12:40 | 42.5 | 21.8 | 7.36 | 1.01 | 87 | 2.36 | 95 | 271.89 | |
| 13:00 | 52.5 | 22.2 | 7.36 | 1.00 | 80 | 2.45 | 81 | 271.89 | CLOUDY |

| Sample Analyses → | Method | Container Type/Volume | Preservative |
|---|---|---|---|
| | EPA 8260 VOCs | | |
| | EPA 8270 SIM SVOCs | | |
| | EPA 504.1 1,2,3-TCP | | |
| | EPA 6010/7471 Title 22 Metals | | |
| | EPA 7196 Hexavalent Chromium | | |
| | EPA 1625 NDMA | | |
| | EPA 314.0 Perchlorate | | |
| | EPA 353.3/354.1 Nitrate/Nitrate | | |
| | EPA 300.0/6010B Anions and Cations | | |
| Sample Collection Method: ↘ | EPA 376.2 Sulfide | | |
| | EPA 6010 Dissolved Fe and Mn | | |
| | | | |

| Pump. ☒ Flow Rate:<100ml/min | Sample ID: 4899-280-072006-0 | Sample Time: 13:30 |
|---|---|---|
| Bailer. ☐ Type: disposable | ~~Duplicate ID:~~ MS/MSD: 4899-280-072006-0 | Sample Time: 13 30 |
| Other: ☐ Desc.: | Equip. blank ID. 4899-280-072006-2 | Sample Time: 14:30 |

CDM MONITORING WELL PURGE AND SAMPLING FORM

| | | |
|---|---|---|
| Well No.: 4899 | Site: **Former Hewitt Landfill** | Date: 7/20/06 |
| Client: **Vulcan** | Project Number: **22517-51079** | |
| Well Casing Diameter (inches): 8" | Well Casing Material: (PVC) SS Other: | |
| Well Headspace: 0.0 PID (ppm): N/A | FID (ppm): N/A | |
| Samplers: H. YOUNG | with CDM | |

Total Depth of Well (feet): 291.72 (bTOC) - 0.16
Depth to Water (feet): 271.89 (X) 4" - 0.65 Gal/ft = NA (X) 3 = NA
Water Column Height (feet): _____ 6" - 1.47
Well Reference Point: **TOC** 8" - _____
**Low Flow Purge**

PURGE METHOD: Submersible pump ☐ Bladder pump ☒ Disposable bailer ☐

| | |
|---|---|
| Pump Make/Model: QED | Depth of pump intake (feet): 280' bTOC |
| Purge equipment decontaminated? Y ☒ N ☐ | Container type: Baker tank or 55 gallon drum |
| Purge/decon water containerized? Y ☒ N ☐ | Volume: |

Initial DO 3.44 mg/L Start Time: 11:15 Flow Rate: 500mL/MIN

| Time | Gallons | Temp. (°C/°F) | pH | Conductivity (µmhos/cm) | Turbidity (NTUs) | DO (mg/L) | ORP (mV) | DTW (ft TOC) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 13:20 | 62.5 | 22.2 | 7.36 | 1.00 | 70 | 2.31 | 75 | 271.90 | SLIGHTLY CLOUDY |
| 13:30 | 67.5 | COLLECT GROUNDWATER SAMPLE AND MS/MSD. | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| Sample Analyses: | Method | Container Type/Volume | Preservative |
|---|---|---|---|
| → | EPA 8260 VOCs | | |
| | EPA 8270 SIM SVOCs | | |
| | EPA 504.1 1,2,3-TCP | | |
| | EPA 6010/7471 Title 22 Metals | | |
| | EPA 7196 Hexavalent Chromium | | |
| | EPA 1625 NDMA | | |
| | EPA 314.0 Perchlorate | | |
| | EPA 353.3/354.1 Nitrate/Nitrate | | |
| | EPA 300.0/6010B Anions and Cations | | |
| Sample Collection Method: | EPA 376.2 Sulfide | | |
| ↘ | EPA 6010 Dissolved Fe and Mn | | |

| | | |
|---|---|---|
| Pump: ☒ Flow Rate: <100ml/min | Sample ID: 4899-280-072006-0 | Sample Time: 13:30 |
| Bailer: ☐ Type: disposable | ~~Duplicate ID:~~ MS/MSD: 4899-280-072006-Q | Sample Time: 13:30 |
| Other: ☐ Desc | Equip. blank ID: 4899-280-072006-2 | Sample Time: 14:30 |

**CDM** MONITORING WELL PURGE AND SAMPLING FORM

| Well No.: 4909F | Site. Former Hewitt Landfill | Date. 7/21/06 |
|---|---|---|
| Client: Vulcan | Project Number: 22517-51079 | |
| Well Casing Diameter (inches): | Well Casing Material: (PVC) SS Other: | |
| Well Headspace: 0.0 PID (ppm): N/A | FID (ppm): N/A | |
| Samplers: H. YOUNG with CDM | | |
| Total Depth of Well (feet): 340.38' btoc | 2" - 0.16 | |
| Depth to Water (feet): 266.18' | (X) 4" - 0.65 Gal/ft. = NA | (X) 3 = NA |
| Water Column Height (feet): | 6" - 1.47 | Low Flow Purge |
| Well Reference Point: TOC TOP OF | 7.5" - NA | |

| PURGE METHOD: Submersible pump ☐ Bladder pump ☒ Disposable bailer ☐ | |
|---|---|
| Pump Make/Model: QED MP | Depth of pump intake (feet): 285' btoc (TOP OF 2" PIPE) |
| Purge equipment decontaminated? Y ☒ N ☐ | Container type: Baker tank or 55 gallon drum |
| Purge/decon water containerized? Y ☒ N ☐ | Volume: |

Initial DO 8.73 Start Time: 10:55 Flow Rate: 500mL/MIN

| Time | ~~Gallons~~ LITERS | Temp. (°C/°F) | pH | Conductivity (µmhos/cm) | Turbidity (NTUs) | DO (mg/L) | ORP (mV) | DTW (ft TOC) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 10:55 | 0 | | | | | | | | BEGIN MICRO PURGE AT 500 mL/MIN |
| 11:00 | 2.5 | 26.0 | 7.14 | 0.955 | 61 | 8.73 | 224 | 266.20 | SLIGHTLY CLOUDY |
| 11:05 | 5 | 23.6 | 7.14 | 0.958 | 43 | 9.21 | 230 | 266.20 | SLIGHTLY CLOUDY |
| 11:10 | 7.5 | 22.0 | 7.11 | 0.956 | 25 | 9.73 | 261 | 266.20 | SLIGHTLY CLOUDY |
| 11:15 | 10 | 21.8 | 7.05 | 0.958 | 13 | 9.33 | 278 | NM | SLIGHTLY CLOUDY |
| 11:20 | 12.5 | 21.6 | 7.01 | 0.959 | 12 | 9.04 | 281 | 266.19' | CLEAR |
| 11:25 | 15 | 21.6 | 6.97 | 0.961 | 14 | 9.95 | 274 | NM | CLEAR |
| 11:30 | 17.5 | 21.6 | 6.94 | 0.962 | 10 | 9.51 | 278 | 266.20 | CLEAR |
| 11:35 | 20 | 21.7 | 6.92 | 0.961 | 11 | 9.18 | 280 | 266.20 | |
| 11:40 | COLLECT | GW | SAMPLE. | | | | | | |

| Sample Analyses → | Method | Container Type/Volume | Preservative |
|---|---|---|---|
| | EPA 8260 VOCs | | |
| | EPA 8270 SIM SVOCs | | |
| | EPA 504.1 1,2,3-TCP | | |
| | EPA 6010/7471 Title 22 Metals | | |
| | EPA 7196 Hexavalent Chromium | | |
| | EPA 1625 NDMA | | |
| | EPA 314.0 Perchlorate | | |
| | EPA 353.3/354.1 Nitrate/Nitrate | | |
| | EPA 300.0/6010B Anions and Cations | | |
| Sample Collection Method ↘ | EPA 376.2 Sulfide | | |
| | EPA 6010 Dissolved Fe and Mn | | |
| | | | |

| Pump: ☒ Flow Rate: <100ml/min | Sample ID: 4909F-285-072106-0 | Sample Time: ~~11:40~~ 11:50 |
|---|---|---|
| Bailer: ☐ Type: disposable | Duplicate ID: 4909F-285-072106-1 | Sample Time: ~~11:50~~ 11:40 |
| Other: ☐ Desc.: | Equip. ~~blank~~ ID: | Sample Time: |

CDM MONITORING WELL PURGE AND SAMPLING FORM

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